ABSTRACT

To greatly increase the storage density of a storage apparatus, an electron beam E emitted from a cold cathode **101** is accelerated by an accelerating electrode **102**, caused to converge by a convergence electrode **103**, deflected by a deflection electrode **104** and applied to a minute region of a storage film **105**. The storage film **105** includes, for example, a phase change film **105a**. The film is rapidly heated and cooled to change into an amorphous state upon irradiation with an electron beam E with high energy, while being gradually cooled to change into a crystallized state upon irradiation with an electron beam E with approximately intermediate energy, thereby storing data. Upon irradiation with an electron beam E with low energy, the potential difference between a detection electrode **105b** and an anode **105c** is detected depending on the state, i.e., the amorphous or crystallized state, thereby reading stored data.